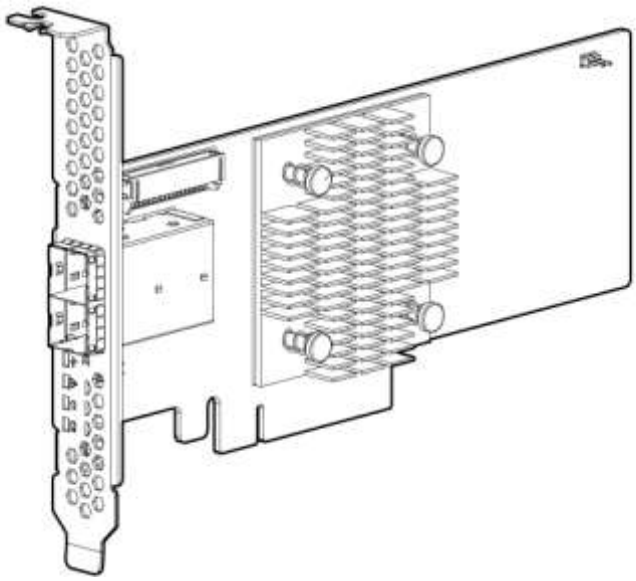
Overview

HP H241 Smart Host Bus Adapter

The HP H241 Smart Host Bus Adapter is a 2X4 12Gb/s SAS external port HBA that provides customers with the flexibility and speed they have come to expect from HP. The H241 Smart HBA is ideal for external connectivity to tape drives, shared storage, and external JBODs providing support for both 12G SAS and 6G SATA Hard Disk Drives. The H241 Smart HBA can also provide high performance for SSDs that do not require data protection. This SAS HBA is ideal for driving cost-effective and reliable scalability in today's data centers. The H241 Smart Host Bus Adapter provides flexibility to run in HBA mode or simple RAID mode. When operating in simple RAID mode, it provides RAID 0, RAID 1, and RAID 5 with optional HP Secure Encryption capabilities. Unlike the HP Smart Array Controllers, the H241 does not offer any acceleration or support cache modules.



Model

Host Bus Adapter	HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21

Kit contents

- HP H241 Smart Host Bus Adapter
- Low profile controller bracket

Compatibility

Servers

ProLiant DL (rack-optimized):

- HP ProLiant DL360 Gen9
- HP ProLiant DL380 Gen9
- HP ProLiant DL160 Gen9
- HP ProLiant DL180 Gen9

ProLiant ML (expansion-optimized):

- HP ProLiant ML350 Gen9

ProLiant SL (scalable system):

- HP ProLiant SL210t Gen8
- HP ProLiant SL250s Gen8
- HP ProLiant SL270s Gen8

Standard Features

Performance	Designed to be as flexible as HP servers, HP H241 Smart Host Bus Adapter provides support for the tape drives, external JBODs, and Shared Storage. The HP H241 adapter delivers exceptional system performance, with eight 12Gb/s SAS ports providing up to 96Gb/s total storage bandwidth. HP's High Performance Architecture sets new boundaries for industry performance expectations! • 12Gb/s SAS (bandwidth per physical link) • 96Gb/s total available bandwidth (8 physical links x 12Gb/s) • PCIe 3.0 host interface x8 (8GT/s bandwidth per lane)
HP Server Integration	Fully integrated and tested with ProLiant servers and management software.
Key Features	• SAS technology delivers high performance and data bandwidth up to 12Gb/s per physical link • Mix-and-match SAS and SATA hard drives; deploy drive technology as needed • PCIe 3.0 x8 (8GB/s bandwidth)
Ports	Eight (8) SAS physical links distributed across 2 x4 external SFF-8644 Mini-SAS HD connectors
Capacity	Fulfilling the need for high performance and capacity expansion, the HP H241 Smart HBA offers: • Eight 12Gb/s SAS physical links supporting up to 2 simultaneous x4 Wide SAS Ports • Capacity up to 576TB of SAS or 576TB SATA
Form Factor	• Either high-profile or low-profile PCIe 3.0 slots. (parts included with option)
Operating Systems	Microsoft Windows Server 2012 R2 Microsoft Windows Server 2012 Microsoft Windows Server 2008 R2 Microsoft Windows Hyper-V 2012 Microsoft Windows Hyper-V 2008 Red Hat Enterprise Linux 7 Red Hat Enterprise Linux 6 U5 SUSE Linux Enterprise Server 11 SP3 SUSE Linux Enterprise Server 12 (support pending) Canonical Ubuntu 14.04* Canonical Ubuntu 12.04* Solaris 11.1* **NOTE:** For more Linux OS support & certification information, please visit the ProLiant & BladeSystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hplinuxcert.html
Off Line	HP Smart Component for HP H241 Smart Host Bus Adapter
Warranty	The warranty for this device is 1 year parts only. **Warranty Upgrade Options** • Response - Upgrade on-site response from next business day to same day 4 hours • Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days • Duration - Select duration of coverage for a period of 1, 3, or 5 years • Warranty upgrade options can come in the form of Care Packs, which are sold at the HP System level this product attaches too

Service and Support

Service and Support

HP Technology Services
HP Technology Services offers you technical consultants and support expertise to solve your most complex infrastructure problems. We help keep your business running, boost availability, and avoid downtime.

Protect your business beyond warranty with HP Care Pack Services
When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HP Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, HP can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services

3-Year HP 24x7 4 hour Response, Proactive Care
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

OR

3-Year HP 24x7 4 hour Response, HP Collaborative Support
Provides problem resolution support across the stack of HW, firmware, and HP and 3rd party SW. In case the issue is with 3rd party SW, HP does known issue resolution. If HP cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf

HP Installation of ProLiant Add On Options Service
This easy-to-buy, easy-to-use HP Care Pack service helps ensure that your new HP hardware or software is installed smoothly, efficiently, and with minimal disruption of your IT and business operations

Related HP Care Pack Services to enhance your HP product experience

Related Services

3-Year HP 24x7 4 hour Response, Proactive Care
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

OR

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service
Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

Service and Support

	3-Year HP 6-hour Onsite Call-to-Repair, HP Collaborative Support Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HP Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to HP. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf **HP Proactive Select Service** Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf
Insight Remote Support	Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more http://www.hp.com/go/insightremotesupport
HP Support Center	Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement. *HP' Support Center Mobile App is subject to local availability
Parts and materials	HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.
Warranty / Service Coverage	For ProLiant servers and storage systems, this service covers HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.
For more information	To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant or www.hp.com/services/bladesystem

Related Options

NOTE: This is a list of supported options. Some may be discontinued.

HP Disk Enclosures	**HP D2000 Disk Enclosures (6Gb/s JBODs)**	
	HP D2600 Disk Enclosure NOTE: Supports 12 LFF Drives and SAS 6Gb/s and SATA 3Gb/s.	AJ940A
	HP D2700 Disk Enclosure NOTE: Supports 25 SFF Drives and SAS 6Gb/s and SATA 3Gb/s. **NOTE:** Please see the QuickSpecs for additional information and a list of compatible hard drives: http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html (Worldwide)	AJ941A
	HP D3000 Disk Enclosures (12Gb/s JBODs) HP D3600 Disk Enclosure NOTE: Supports 12 LFF Drives and SAS 12Gb/s and SATA 6Gb/s.	QW968A
	HP D3700 Disk Enclosure NOTE: Supports 25 SFF Drives and SAS 12Gb/s and SATA 6Gb/s. **NOTE:** See the D3000 Disk Enclosure QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://www8.hp.com/h20195/v2/GetDocument.aspx?docname=c04227611	QW967A
	HP D6000 Disk Enclosure HP D6000 Dual I/O Module Disk Enclosure NOTE: Support 70 LFF Drives and SAS 6Gb/s. **NOTE:** Please see the supported Disk Enclosure QuickSpecs for a list of compatible hard drives: http://h18000.www1.hp.com/products/quickspecs/14419_div/14419_div.html	QQ695A
	MSA 2040 Storage HP MSA 2040 SAS Dual Controller LFF Storage HP MSA 2040 SAS Dual Controller SFF Storage **NOTE:** Please see the supported MSA 2040 QuickSpecs for a list of compatible hard drives: http://h18004.www1.hp.com/products/quickspecs/14603_div/14603_div.html	C8S54A C8S55A
HP Tape Drives	**DAT Tape Drives**	
	HP StoreEver DAT 160 SAS External Tape Drive	Q1588A
	LTO Ultrium Tape Drives	
	HP StoreEver LTO-3 Ultrium 920 SAS External Tape Drive	EH848A
	HP StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive	EH920A
	HP LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946A
	HP StoreEver LTO-4 Ultrium 1840 SAS External Tape Drive	EH861A
	HP StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958A
	HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive LTO6 is missing	EH900A
	Rack-mount Tape Drive Enclosures	
	HP 1U SAS Rack-mount Kit **NOTE:** The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS and LTO-4 Ultrium 1760 SAS tape drives.	AE459A
	HP 3U SAS Rack-mount Kit **NOTE:** The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple SAS tape drives including DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS, LTO-4 Ultrium 1760 SAS and LTO-4 Ultrium 1840 SAS tape drives.	AG576A

Related Options

Tape Autoloaders	
HP 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
HP 1/8 G2 Ultrium 920 SAS Autoloader	AH558A
HP 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader	BL536A
Tape Libraries	
HP MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
HP MSL2024 Ultrium 920 SAS Tape Library	AH559A
HP MSL2024 1 LTO-5 Ultrium 3000 SAS Tape Library	BL537A
HP MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
HP MSL4048 2 LTO-5 Ultrium 3000 SAS Tape Library	BL538A
HP MSL8096 2 LTO-4 Ultrium 1760 SAS Tape Library	AK382A
HP MSL8096 2 LTO-5 Ultrium 3000 SAS Tape Library	BL539A
SAS Cables for Tape Drives and Automation	
HP SAS Min-Min 1x-2M Cable Assembly Kit **NOTE:** Use this cable to connect HP SAS external tape devices to HP SAS controllers with external Mini-SAS (SFF8088) connectors.	AE470A
HP SAS MIN-MIN 1X-4M Cable Assembly Kit **NOTE:** Use this cable to connect HP SAS external tape devices to HP SAS controllers with external Mini-SAS (SFF8088) connectors.	AE465A
HP 2m External Mini-SAS to 4x1 Mini-SAS Cable **NOTE:** One cable is required for every four drives. Use this cable to connect HP MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.	AN975A
HP 4m External Mini-SAS to 4x1 Mini-SAS Cable **NOTE:** One cable is required for every four drives. Use this cable to connect HP MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.	AN976A

Technical Specifications

Dimensions (excluding bracket)	6.6 x 2.7 x 0.6 in (16.8 x 6.86 x 1.6 cm)
Disk Drive and Enclosure Protocol Support	12Gb/s SAS (Serial Attached SCSI) 6Gb/s SATA (Serial Advanced Technology Attachment)
Architecture	Serial Attached SCSI (SAS) Serial Advanced Technology Attachment (SATA) PCIe 3.0 x8
SAS Connectors	2 x4 external SFF-8644 (Mini-SAS HD)
Data Transfer Method	4.8GB/s bandwidth per port for combined throughput of up to 96Gb/s
PCIe Bus Speed	PCIe 3.0 x8 (8GT/s maximum bandwidth)
Simultaneous Connection Transfer Ports	2 x 4 mini SAS HD Connectors
Port Transfer Rate	96Gb/s per x8 mini SAS HD Ports (8 x 12Gb/s)
Software upgradeable Firmware	Yes
Maximum Capacity	576TB SAS, 576TB SATA
Memory Addressing	64-bit, supporting servers memory greater than 4GB
Boot mode	UEFI or Legacy boot mode support

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.